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INTRODUCTION
TO A
COURSE OF LECTURES
ON
NATURAL HISTORY.

DELIVERED IN THE UNIVERSITY OF PENNSYLVANIA, NOV. 16, 1799.

BY CHARLES W. PEALE.

“ Still let me various NATURE scan :
The world’s my HOME; my Brother, MAN :
And GOD is every where.”

PETRIE.



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JOSEPH BANKS

ADVERTISEMENT.

ALTHOUGH it is some time since the following lecture was delivered ; at the solicitation of some of my friends, I have consented to publish it, since the purpose still continues in force, for which it was chiefly delivered ; that of impressing on the minds of our citizens the importance both of the study of natural history, and the possession of a Museum. Liberty has been taken to make use of the ideas, and in some instances, the expressions of authors on natural history, which were thought unnecessary, particularly to notice, as it was not originally intended for publication—and indeed in detailing past discoveries and observations it was inevitable ; the chief merit which I lay claim to in this and the Lectures in succession to it, is, that I have not been chained to any system nor author, but from fifteen years attention to the subject, have made some discoveries in natural history, and found facts to prove the errors of some authors who have treated of it. Natural history has hitherto had but few votaries—now it occupies the more serious attention of men of leisure and science ; and it

it is only in the collection of facts from actual observation, that just ideas and a proper system can be formed of so important a science. The most perfect to my comprehension is that of Linnæus, though formed as it was in the midst of error and confusion: it is the most simple and comprehensive; and subsequent refinements have only refined away the utility of it,

C. W. PEALE.

INTRODUCTION
TO
COURSE OF LECTURES.

ARMED by a zeal to be useful to mankind (perhaps far exceeding my abilities) I am prompted to undertake a task abounding with difficulties, anxiety and labour—particularly so, as I have to lament the want of an earlier attendance to so important a study—am not accustomed to public speaking, and at an advanced stage of life, deprived of perfect articulation.

I therefore expect the indulgence of a liberal audience while I endeavour to delineate a science, the favorite pursuit of my declining years, —a science comprehending all nature!

O THOU! whose works proclaim thee good and wise, the most minute of which display the finger

finger of an omnipotent author; grant to ONE of thy works, strength to declare the praise of ALL!

What more pleasing prospect can be opened to our view than the boundless field of nature? not only comprehending the inhabitants of earth, sea, and air; but earth, sea and air themselves—presenting an inexhaustible fund for amusing and useful enquiry.

The comfort, happiness and support of all ranks, depend upon their knowledge of nature. In the early periods of society, man was compelled more by necessity than mere amusement to investigate the qualities of those objects which a munificent author had opened to his view—That necessity taught him how to feed, clothe and shelter himself from the inclemencies of the weather; and tho' her calls of necessity are now much weakened, who will deny that the condition of man may not, by a still closer and more extensive investigation, be considerably improved.

No one therefore need blush at having ranked among his earnest pursuits, the study of a science, whose

whose truths so immediately interest him and contain the strongest evidence of an existing all-perfect and omnipotent author, even from the smallest survey; but when minutely examined, when extensively surveyed, how wonderful —how sublime are our ideas of the Deity !

The injunction given to Adam to name the works of creation, implied a necessity to become acquainted with those works, in order to name and characterise them, without confusion.—Let this early ordinance extend to us, and teach us, not only their names and uses but their cause; for I am bold to say that every one who really delights in the contemplation of nature *must* be virtuous.—Those

“ Whom nature’s works can charm, with God himself
Hold converse; grow familiar, day by day,
With his conceptions, act upon his plan;
And form to his the relish of their souls.”

Revealed religion commands our attention to the practice of moral duties; and her injunction gains tenfold influence, when all nature enforces our attention to them, if we would not be surpassed by those animals which we often think

think beneath us—How weak, how poor, how contemptible, must that human creature be, who, destitute of virtue, will neither learn from man, nor the animals around him, the proper exercise of his faculties.

Pope only imitated the voice of nature, when he advised man to

“ Learn from the birds what food the thickets yield ;
Learn from the beasts the physic of the field ;
The art of building from the bee receive ;
Learn from the mole to plow, the worm to weave ;
Learn from the little nautilus to sail,
Spread the thin oar and catch the driving gale.”

Example is the most powerful instructor, and it is to be wished that our divines would more generally inforce their observations on the duties of man, by instances of propriety, I may say virtue, from among the brute creation.

Whenever they *are* introduced universal satisfaction is observed and if more attended to, a novel and beneficial field is opened for the advancement of happiness and the display of talents. Hence would this important truth be more

more generally received; that the world is destined to manifest the glory of the Creator, and that man is just in a situation to be the interpreter and publisher of the divine wisdom; for, indeed he who knows it not from observation on nature, can scarcely learn it from another source.

A taste for natural enquiries is not only useful in the highest degree, but a neverfailing source of the most exalted enjoyment; a more rational pleasure cannot possibly occupy the attention or captivate the affections of mankind, than that which arises from a due consideration of the works of nature.

The pains, evils and uneasiness which unavoidably occur in life, must be tempered with a large portion of pleasure to render them tolerable—and it is in the power of the naturalist to point out the most exalted of pleasures as well as the most innocent and advantageous: For what use would the sun display its beams? for what use would this spacious world be furnished by the great and bountiful Author of Nature, were there no rational beings capable of admiring and turning them to their advantage—for this enjoyment, our senses, the inlets to knowledge, are bestowed upon us.

Frequent

Frequent contemplations of the magnificence, beauty, regularity, proportion and utility in the works of creation, cannot but impress the minds of men, not only with ideas of wonder, admiration, and gratitude ; but induce the most cheerful acquiescence in the dispensations of a wise providence. To him who considers not this as the end of knowledge, the voice of nature speaks in vain, and all his wisdom is but madness.

When we are convinced that the laws of the omniscient, are unchangeable and admit of no improvement, we may admire,—adore,—and be happy.

Thompson, the delighted and observing pupil of nature, thus exclaims—

“ How wond’rous is this scene ! where all is form’d
With number, weight, and measure ! all designed
For some great end ! where not alone the plant
Of stately growth ; the herb of glorious hue
Or food-full substance : not the labouring steed ;
The herd, and flock, that feed us ; not the mine
That yields us stores for elegance and use ;
The sea that loads our table ; and conveys
The winderer man from clime to clime ; with all
Those rolling spheres, that from on high shed down

Their

Their kindly influence ; not THESE ALONE,
Which strike ev'n eyes incurious ; but each mos',
Each shell, each crawling insect, holds a rank
Important in the plan of him who farm'd
This scale of beings ; holds a rank, which lost
Would break the chain and leave behind a gap
Which nature's self would rue. Almighty Being,
Cause and support of all things, can I view
These objects of my wonder, can I feel
These fine sensations, and not think of thee ?
Thou who dost thro' th' eternal round of time,
Dost thro' th' immensity of space alone
Exist, shalt thou alone excluded be
From this thy universe ? shall feeble man
Think it beneath his proud philosophy
To call for thy assistance, and pretend
To frame a world, who cannot frame a clod ;—
Not to know thee, is not to know ourselves—
Is to know nothing—nothing worth the care
Of man's exalted spirit—all becomes,
Without thy ray divine, one dreary gloom,
Where lurk the monsters of fantastic brains,
Order bereft of thought, uncaus'd effects,
Fate freely acting, and unerring chance.”

In the progress of society from a rude to a
civilized state, the knowledge and domestication
of animals, have always been deemed an
important æra in its history, and have operated
with decisive influence on the condition of man.

Without

Without the ministry of animals, his operations on nature around him are extremely feeble and limited ; many of those animals being superior to him in size, courage and strength.

If from the ministry of quadrupedes, man derives his most considerable assistance; to the feathered race he is indebted for some of his most innocent enjoyments—among them he has friends of zealous and steady attachment, and few enemies of any force or inveteracy—The water supplies him with a delicious variety in his repasts ; the vegetable world affords him the most wholesome support—and the mineral kingdom enables him to bring all the rest to his subjection.

Natural history is not only interesting to the individual, it ought to become a NATIONAL CONCERN, since it is a NATIONAL GOOD, —of this, agriculture, as it is the most important occupation, affords the most striking proof.

The farmer ought to know the characteristic properties of those tame animals in his use, to derive proper advantage from them, and to know whether other animals might not be brought

brought into subjection to supply their place with advantage—and how to procure and support them : He ought to know the qualities of the soil which he cultivates and the means of managing and improving it. The nature of the grain which he raises; and whether there are not others which he might introduce with greater profit ; whether his land contains substances suitable to manure and meliorate the soil ; and whether it contains fossils, such as turf or coal, &c. fit for fuel, in order to save his timber; or minerals useful in the mechanic arts.

He ought to know what reptiles best aid and protect the fruit of his labour, and not through ignorance destroy such as feed on animals *more* destructive of his grain and fruits ; nor ridiculously possess antipathies to those which he ought to *cherish*—but, as it is to be lamented that man receives these as part of his early education ; so it is to be hoped that when the knowledge of our favorite science shall be more extended, man shall not merit this stigma on his reason.

Why is it so ? Whence these antipathies ?—Is there any being ugly or hateful in the eyes of

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the Creator?—This is a serious question and important to our happiness in many respects.

Never shall I forget my disagreeable sensations, when a naturalist, my friend, demanded of me, why I called a toad, ugly?—My conscience instantly smote me for presuming to depreciate the works of *Divine Wisdom*; and from that moment became convinced, that every thing is beautiful in its kind; and I have now a continual pleasure in the contemplation of many things which once appeared disgusting and terrible to me.

The farmer ought to know that snakes feed on field mice and moles, which would otherwise destroy whole fields of corn; and that those birds which pick and appear to injure the trees, there find innumerable worms and beetles, which, left to commit their ravages, would sap and destroy whole orchards of the best fruit. Nature is perfect in all her works, nor is there any thing made in vain; and it is our duty to study her ways, in order that we may know what is meant for our particular benefit.

To the merchant, the study of nature is scarcely

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ly less interesting, whose traffic lies altogether in materials either *raw* from the stores of nature or *wrought* by the hand of ingenious art. Had the operations of the silk worm never been examined, how could men have availed themselves of the labour of an insect that administers so profusely to our luxuries and wants? It was not to the unobserving it first occurred, that the produce of that animal's labour might be converted into a considerable article of commerce, and might give use to many arts; and afford subsistence to many thousands of manufacturers: In the same manner, wax and honey enter into the article of commerce, and add to our enjoyments.

It cannot therefore be denied that they were not profitably employed, who first observed the industry of the bee; who brought it from its native woods, introduced it into our gardens, and by domesticating it there, have rendered it subservient to us. The Chinese, it is said, avail themselves of the labours of certain insects, in procuring a rich dye; and from a species of winged ant, an excellent varnish.

The mechanic ought to possess an accurate knowledge

knowledge of many of the qualities of those materials with which his art is connected—Enquiries into these may extend improvements in those arts, and even introduce others, highly conducive to the comforts and conveniencies of life.

In short, what science or profession is not benefited by a knowledge of the works of nature?

The Swedish government did not disdain to ask the aid of Linnæus; and his advice, founded on his knowledge of natural history, saved their shipping from destruction. The very first news of government are made strong by a diffused knowledge of this science—of this, agriculture, the mechanic arts, religion, are striking evidences.

Nature is silent only to those who know not how to interrogate her—to the man of inquisitive mind she offers ample instruction, with regard to the rank he holds in the scale of creation; to the materials of his enjoyment, and to the number and variety of those creatures which he is destined to govern; and while she thus displays,

plays before him the extent of his obligations, she also leads him to a knowledge of that being, to whom he owes them. No land is so barren and dreary that any of its inhabitants need perish with hunger, if acquainted with its productions and their use—it is from this acquaintance that all rural and domestic economy, founded on the knowledge of nature, rises to the highest perfection; whilst others, not deduced from this science, are involved in innumerable difficulties.

How delightfully may the leisure of a country life be enjoyed, instead of finding it a burden, by directing our inquisitive spirit to the works of nature. How much more harmless and agreeable this enjoyment of a vacant hour, than in the too common practices of idleness, vain curiosity and slander—the greatest evils of society.

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Men of a studious and sedentary life in searching for an agreeable relaxation to their minds, pay a necessary condescension to the weakness of human nature—These, amid the inhabitants of the grove, may innocently beguile the dream of life, and find an useful relaxation from the severity of wisdom—But to the musician, poet,
painter

painter and sculptor, whose delightful arts give a kind of second existence to nature, is it peculiarly important to be acquainted with the beauties of their model.

The field of natural history is almost boundless; is a science so copious, affording such a variety of studies, that whatever may be the particular talents of the individual, he will here find abundant matter to exercise his genius—But to persons, whose situations in life, leave them without the necessity of employment for a considerable part of their waking hours; who suffer that *ennui*—that dejection of spirits, from which, to relieve themselves, they too often have recourse to habits, the fore-runners of vice and misery, it is of inexpressible benefit!

Oh! could they be induced to taste the sweets resulting from reflections on the rise, progress and qualities of natural objects, whether animate or inanimate, which they occasionally meet with in the earth, air, or water—so far would they be from desiring to *kill* their time, that they would have full enjoyment for every moment of life.

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The world is a museum in which all men are destined to be employed and amused, and they cannot be too much interested in the objects around them. Goldsmith the elegant imitator of Buffon, says “ The mere uninformed spectator passes on in gloomy solitude ; while the naturalist in every plant, in every insect, and in every pebble, finds something to entertain his curiosity and excite his speculation.”

But it is only by order and system that a general view may be had of so extensive a subject, and that the great book of nature may be opened and studied, leaf by leaf, and a knowledge gained of the character which the great Creator has stamped on each being—without this, our desire would very soon be arrested by confusion and perplexity.

The credit of having first given natural history the form of system, is justly given to the celebrated Linnæus of Sweden ; to whom I am infinitely indebted for the present arrangement of my Museum.

I have long wished to be in a situation to point out to others, the various beauties which have

have delighted me while in the pursuit of my unremitting labours for years; with the view of establishing a PUBLIC MUSEUM.

The longest life is too short to accomplish the work I had undertaken; and foreseeing the risk, that my labours might be lost, I have hastened to put all I have been able to collect into such good preservation, as to insure their duration; and, by their arrangement, enable me to begin a course of lectures; which if I can accomplish, will infallibly stamp the proper value on the treasures of a museum. But knowing the difficult task which a lecturer has of profitably entertaining a number of pupils of various disposition, genius, and talents, I enter on it with the greatest diffidence: How well it may be executed, some few lectures will determine.

I have never had an opportunity of being present at such lectures; nor have had the advantage of perusing but a few books, on this subject; —therefore at least the arrangement of my lectures will be original; and I promise the friends of this pleasing study, that diligence shall not be wanting to procure the best means of information

mation in my power, to enable the friends of science who may favor me with their presence, properly to know the character of each subject; by pointing out the ingenious rules of art, observed for the sake of distinction. I shall use my best endeavours to give *nothing false*, and to *explode error*.

Since many of my audience may not know under what difficulties I have formed a *Muséum* — permit me here to give a concise account of its rise and progress.—In speaking for a moment of myself, I hope I shall not be accused of the vanity of egotism.

For a number of years I followed the profession of a portrait painter; and by the labours of my pencil alone, supported a large family, and might have acquired a fortune; but, like many others of my countrymen, was more active for the public good, than solicitous of acquiring wealth.

At length I found it absolutely necessary to determine, whether to continue my political career, or leave it for the more peaceful studies of the fine arts: When the merit of each was put

in the balance, the peaceful muse outweighed political warfare—and since that period I have been scarcely so much as a common observer of the political world.

Leaving the walks of public life, I soon found leisure; and began to paint a collection of the portraits of characters distinguished in the American revolution—which may now justly be considered a valuable one.

I often view it with a pleasing pain, as it brings to my memory the agreeable converse of a Randolph, a Laurens, a Washington, a Green; the philosophic Franklin and Rittenhouse; and of the hair-breadth escapes of Decalb, Paul Jones, and Wayne, and the meritorious exertions and services of many others recognized in those monumental tablets.

From this digression I return to the subject— Having made some progress in the portraits of those worthies—my friend Col. Ramsey suggested the idea of amusing the public curiosity by putting into one corner of my picture-gallery, some bones of the mamoth, the enormous nondescript of America. Mr. Patterson (Professor

of Mathematics in our University) encouraged the plan, and presented me with the first article, a curious fish of our western waters, with which to begin my Museum.

From so *small* a beginning, arose a fabrick, which in some future day may be an honor to America.

Little did I then know of the labour I was bringing on these shoulders.—Tho' I was called *mad* and cautioned to beware of the gulph into which many others of greater merit had fallen, —*neglect and poverty*,—yet so irresistably bewitching is the thirst of knowledge in the science of nature that neither the want of funds, nor leisure from other occupations, could damp my ardour, tho' a thousand difficulties rose in succession.

Foreigners are surprised to hear this is the work of an individual, unsupported by public bodies! yet it is a fact, which in future will scarcely be credited, *that neither to the government of the United States, the state of Pennsylvania, nor any other state am I under the least obligation for the present appearance of the Museum.* To individuals only, can I say I am indebted—
for

for whose numerous donations I shall ever be thankful.

Curiosities which are accidentally acquired cannot be better disposed of than by putting them into a *repository for the public inspection*, where they may become immensely *useful* to thousands; otherwise, however valued at first, they are commonly shewn only to a few friends—the novelty subsides, and they are lost, or sent, as many have regretted, to Europe's overflowing stores. The attention paid in the old world to collections of this nature, is a sufficient proof of their importance; where they are often the nurseries of the greatest scientific characters. It is to the Museum of a country, that travellers, after their more local and characteristic enquiries, should sedulously attend, in order to gain correct information on some of its most important peculiarities. Knowledge thus collected might often be the source of infinite benefit to their countrymen.—But in order that the benefit may be *certain*, every traveller should be acquainted with the products of his *own*, to enable him to enquire after and distinguish the peculiarities of *other* countries; and should particularly be acquainted with *some kind of system*, by which to

direct

direct those enquiries; for it is only by method in collecting and storing our ideas, when a multiplicity is presented to us, that the knowledge of them is retained and rendered of service.

How often have I been surprised, in my Museum, to observe multitudes of my fellow citizens not even acquainted with the most common and valuable productions of our country!

If the labours attending my Museum will have the effect of making general this necessary acquaintance, in remarking the benefit which must follow to the public, I shall feel no inconsiderable reward.

I here publicly, and with earnestness, solicit the countenance and aid of the several professors, belonging to this honorable institution, the University of Pennsylvania.

Natural history, is a branch of science which particularly falls under the jurisdiction of our professors of philosophy; and although both in Britain and America but little attended to in schools for the instruction of youth, yet it is one of the most important studies to be insisted upon.

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Here, where the tender minds of youth receive their first and strongest bias—where they are taught to be wise, virtuous and happy—such an impression must have very great influence on their succeeding habits.

It is in the important and honorable office of pastors, teachers and professors, each in their respective modes of diffusing knowledge, that we must *confide*, for forming the minds of rising generations.—May they, in the pursuit of their arduous task, meet with success, honor and reward.

Having thus attempted to explain the nature of the subject which is to be the ground-work of my future lectures, with a desire to impress on the minds of my fellow citizens a just idea of its importance, with the pleasing hope, that my exertions, if not *immediately*, may ultimately tend to the PUBLIC GOOD ;—

Permit me to conclude this address with a few lines of quotation from doctors Priestly and Enfield.

“ Of scientific pursuits (says the philosophic Priestly)

Priestly) the most liberal, the most honorable, the happiest, and what probably will be the most successful employment for a man in easy circumstances, is the study of nature ; and therefore to this important object a principal attention should be given in educating youth who have the means of applying to these instructive and comfortable pursuits. Every man finds vacant moments from his ordinary business, which cannot be better filled than by such attentions as lead to the improvement of his understanding and elevate his mind to admire more and more, the astonishing works of the Creator, and thus is real religion befriended.

All the arts—from whence is derived whatever tends to the security and comfort of mankind, depend upon the knowledge of the POWERS OF NATURE ; and the *only* possible way of acquiring and increasing the conveniences and comforts of life, of guarding against inconveniences and vexations, to which all are subject, and of enlarging the powers of man, is through a *further* acquaintance with the *powers of nature.*"

Doctor Enfield, in a discourse on the works
of

of God, makes philosophy and religion combine to exalt the character of the Creator; and he concludes with exhorting you, to study the *works of nature* for a higher purpose than merely to furnish you with an amusing employment for your leisure hours, or with topics of entertaining conversation.

Let philosophy conduct you to the temple of religion; contemplate the objects and productions of nature as the great and marvelous works of Almighty God; Let the contemplation confirm your faith in his being and providence, exalt your conceptions of his nature, and lead you to look up to him without superstitious terror; and approach him without fanatical familiarity or mystical enthusiasm; but at all times you will think and speak of him, and adore and worship him with reverence as *the first of all Beings*"

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